CMOS ACTIVE PIXEL WITH RESET NOISE REDUCTION

ABSTRACT

A CMOS image sensor array has rows and columns of active pixels. In addition, there are one or more column lines each cooperating with the active pixels in the respective columns. Each active pixel has an output connected to a column line. Each active pixel includes a photodiode that produces a signal proportional to incident light intensity. The proportional signal is applied to the active pixel output if the column select and row select are appropriately set. In addition, each active pixel has a reset transistor for resetting the active pixel. Each reset transistor has a gate and first and second terminals. A reset voltage is applied to the gate of each reset transistor to cause a reset.

The CMOS image sensor array also has one or more amplifiers. Each amplifier has a first input connected to a different column line. Each amplifier provides a negative feedback output to the first node of each reset transistor of the active pixels for the respective cooperating column line. An reset reference voltage is applied to a second input of each amplifier to adjust the negative feedback to adjust the voltage at the second node of each reset transistor to a desired reset voltage. The second node of each reset transistor cooperates with the first input of the respective amplifier for the column.